

--- K:REV ---

FILIPPOVA, Mariya Filippovna, kand.geol.-miner.nauk; ARONOVA, S.M.; AFREMOVA, M.F.; GALAKTIONOVA, N.M.; GASSANOVA, I.O.; GIMPELEVICH, E.D.; KARASEV, M.S.; LYASHENKO, A.I.; MAYZEL', Z.L.; RATETEV, M.A.; SOKOLOVA, L.I.; SOLOV'YKVA, N.S.; KHANIN, A.A.; SHISHENINA, Ye.P.; SHNEYDER, N.P.; BAKIROV, A.A., red.; VEBER, V.V., red.; DANOV, A.V., red.; DIKEN-SHTEIN, U.M., red.; MAKSIMOV, S.P., red.; POZNYSH, M.A., red.; SAIDOV, M.N., red.; SEMIKHATOVA, S.V., red.; TURKEL'TAUB, N.M., red.; UL'YANOV, A.V., red. [deceased]; KHALTURIN, D.S., red.; SHABAYEVA, Ye.A., red.; RAZINA, G.M., vedushchiy red.; GENUAD'YEVA, I.M., tekhn. red.

[Devonian deposits in the central provinces of the Russian Platform]
Devonskie otlozheniya tsentral'nykh oblastei Russkoi platformy.
Pod red. M.F.Filippovoi. Leningrad, Gos. nauchno-tekhn.izd-vo nef't.
i gorno-toplivnoi lit-ry, 1958. 404 p. (MIRA 11:4)
(Russian Platform--Geology, Stratigraphic)

BAKIROV, A.A.

Discovery of a new region of extremely rich gas and oil accumulations in the Bukhara-Khiva Depression and problems in organizing its fast prospecting. Sov.geol. 1 no.12:43-56 D '58.
(MIRA 12:4)

1. Vsesoyuznyy nauchno-issledovatel'skiy geologorazvedochmyy neftyanoy institut.

(Uzbekistan--Petroleum geology)
(Turkmenistan--Petroleum geology)

BAKIROV, A.A.

Petroleum and gas-bearing regions of Alaska. Sov.geol. 1 no.12:
140-143 D '58. (MIRA 12:4)

1. Vsesoyuznyy nauchno-issledovatel'skiy geologorazvedochnyy
neftyanoy institut.

(Alaska--Petroleum geology)

(Alaska--Gas, Natural--Geology)

BAKIROV, Abdulkhalat Abdullatypovich; KALINKO, M.K., red.; NIKITINA, V.N.,
red.isd-va; BYKOVA, V.V., tekhn.red.

[Oil- and gas-bearing provinces in North and South America;
geological conditions governing areal oil and gas accumulations]
Nefte-gazonosnye oblasti Severnoi i Iuzhnoi Ameriki; geologi-
cheskie uslovia regional'nogo nefte-gazonakopleniia. Moskva,
Gos.nauchno-tekhn.isd-vo lit-ry po geol. i okhrane neдр, 1959.
295 p. (MIRA 13:3)

(America--Petroleum geology)

(America--Gas, Natural--Geology)

11(2,4)

PHASE I BOOK EXPLOITATION

SOV/2536

Moscow. Institut neftekhimicheskoy i gasovoy promyshlennosti.

Problemy nefti i gaza (Oil and Gas Problems) Moscow, Gostoptekhizdat, 1959.
362 p. (Series: Its: Trudy, vyp 24) Errata slip inserted. 2,000 copies
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I. A. Charnyy, Professor, V. N. Dakhnov, Professor, G. M. Panchenkov,
Professor,

PURPOSE: This collection of articles is intended for specialists in the
petroleum and gas industry. It will also be of interest to scientific
research institutes, teachers and students of vuzes.

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Oil and Gas Problems

SOV/2536

COVERAGE: This collection of articles reviews problems connected with natural and synthetic gas production. A number of articles are devoted to the study of regional oil- and gas-bearing zones, the crystalline beds underlying the Volga-Urals petroliferous region, tectonics of the Caspian depression, seismic prospecting, oil well logging, development of oil and gas fields, petroleum-bearing formations and their physicochemical characteristics, and petroleum engineering. Other articles deal with gas turbine engines and their possible use in the oil and gas industry, the production of carboxymethylcellulose compounds, the application of ionic exchange tars to the organic catalysis, continuous coking of heavy petroleum residues, (fluidization), the improvement of lube oil production, and the influence of acid esters on properties of lubricating oil and grease. The book contains a number of photographs, tables, flow sheets, and diagrams, among which those relating to coal gasification and conversion of heavy petroleum residues over a fluidized bed catalyst deserve special attention. References accompany individual articles.

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Velikovskiy, D. S. Synthetic Acid Esters and Their Influence on
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AVAILABLE: Library of Congress

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MIRCINK, M.F. [Mirchink, M.F.]; BAKIROV, A.A.

Geotectonic development of the Russian Platform and the main laws of the spread of gas and crude oil deposits on Russian territory. Analele geol geogr 14 no.2:3-18 Ap-Je '60.

BAKIROV, A.A., doktor geol.-mineral.nauk, red.; DIKENSHTYN, G.Kh., doktor geol.-mineral.nauk, red.; SHOROKHOVA, L.I., vedushchiy red.; MUKHINA, E.A., tekhn.red.

[Oil and gas potentials of western areas of Central Asia and trends in geological prospecting; materials of the joint conference of the Ministry of Geology and Preservation of Mineral Resources of the U.S.S.R., and the Turkmen, Bukhara, and Kara-Kalpak National Economic Councils, and the Academies of Sciences of the Turkmen and Uzbek Republics. December 1958, Ashkhabad] Perspektivy neftegazonosti i napravlenie geologorazvedochnykh rabot v zapadnykh raionakh Srednei Azii; materialy soveshchaniia Ministerstva geologii i okhrany nedr SSSR sovместno s Turkmenskimi, Bukharskimi i Kara-Kalpakskimi sovetskimi, akademiiami nauk Turkmenskoi i Uzbekskoi SSR. Dekabr', 1958 g., Ashkhabad. Pod red. A.A.Bakirova i G.Kh.Dikenshteina. Moskva, Gos.nauchno-tekhn.izd-vo nef. i gorno-toplivnoi lit-ry, 1960. 292 p. (MIRA 14:2)

1. Moscow. Vsesoyuznyy nauchno-issledovatel'skiy geologo-razvedochnyy neftyanoy institut.
(Soviet Central Asia--Petroleum geology)
(Soviet Central Asia--Gas, Natural--Geology)

BAKIROV, Abdulkhalat Abdullatypovich, prof., laureat Leninskoy premii.

Treasures of Gasli. Nauka i zhizn' 27 no.7:25-27 J1 '60.
(MIRA 13:7)

(Gasli--Gas, Natural)

ALI-ZADE, Ashraf Abdulovich; BAKIROV, A.I., prof., nauchnyy red.; GOROKHOVA,
T.A., red. izd-va; IYERUSALIMSKAYA, Ye.S., tekhn. red.

[Akchagyl stage in Turkmenistan] Akchagyl Turkmenistana. Mo-
skva, Gos. nauchno-tekhn. izd-vo lit-ry po geol. i okhrane
nedr. Vol.1. 1961. 299 p. (MIRA 15:3)
(Turkmenistan—Geology)

BAKIROV, A.; KISELEV, V.V.; KOROL~~OV~~, V.G.

New data on the Paleozoic stratigraphy of the eastern parts of the Ulan Range and the Naryn-Tau. Mat po geol. Tian'-Shania no. 1:23-41 '61.

Geology and age of the "Ulan intrusive massif." Ibid.:123-138 (MIRA 17:2)

BAKIROV, A.A.

Ivan Mikhailovich Gubkin's scientific contribution and the present time. Sov.geol. 4 no.12:33-54 D '61. (MIRA 15:2)

1. Moskovskiy institut neftekhimicheskoy i gazovoy promyshlennosti imeni akademika I.M. Gubkina.

(Gubkin, Ivan Mikhailovich, 1871-1939)

BAKIROV, A.A.

For creative development of Academician I.M. Gubkin's theory of
the classification of large oil- and gas-bearing territories.
Sov. geol. 5 no.7:168-175 J1 '62. (MIRA 15:7)

1. Moskovskiy institut neftekhimicheskoy i gazovoy promyshlennosti
imeni I.M. Gubkina.

(Oil fields—Classification)
(Gas, Natural—Classification)

BAKIROV, A.A.; SHIROKOV, V.Ya.

Prospects for finding large oil and gas accumulations in the
Tajik S.S.R. Sov. geol. 6 no.5:51-62 My '63. (MIRA 16:6)

1. Moskovskiy institut neftekhimicheskoy i gazovoy promysh-
lennosti imeni I.M. Gubkina.

(Tajikistan—Petroleum geology)

(Tajikistan—Gas, Natural—Geology)

BELYAYEVSKIY, N.A., red.; ALI-ZADE, A.A., red.; ALIYEV, M.M., red.;
 BAKIROV, A.A., red.; BELOUSOV, V.V., red.; BEUS, A.A., red.;
 BOGDANOV, A.A., red.; BORISOV, A.A., red.; BRENNER, M.M.,
 red.; DYUKOV, A.I., red.; YERSHOV, A.D., red.; ZARIDZE, G.M.,
 red.; KALUGIN, A.S., red.; KOSOV, B.M., red.; KOPEV-
 DVORNIKOV, V.S., red.; KOTLYAR, V.N., red.; LUGOV, S.F., red.;
 MAGAK'YAN, I.G., red.; MARINOV, N.A., red.; MARKOVSKIY, A.P.,
 red.; MALINOVSKIY, F.M., red.; PUSTOVALOV, L.V., red.; SATPAYEV,
 K.I., red.; SEMENENKO, N.P., red.; TYZHOV, A.V., red.;
 KHRUSHCHOV, N.A., red.; SHCHEGOLEV, D.I., red.; YARMOLYUK, V.A.,
 red.

[Materials on regional tectonics of the U.S.S.R.] Materialy po
 regional'noi tektonike SSSR. Moskva, Izd-vo "Nedra," 1964. 193 p.
 (MIRA 17:4)

1. Russia (1923- U.S.S.R.) Gosudarstvennyy geologicheskii ko-
 mitet.

MUZYCHENKO, Nina Mikhaylovna; YURKEVICH, Tat'yana Yakovlevna; BAKIROV, A.A., prof., glav.red.; RYABUKHIN, G.Ye., prof., red.; USPENSKAYA, N.Yu., prof., red.; ZHDANOV, M.A., prof., red.; DOLITSKIY, V.A., dots., red.; SPIKHINA, A.M., kand. geol. nauk, red.; YUDIN, G.T., kand. geol.-min. nauk, red.; TABASARANSKIY, Z.A., dots., red.; BAKIROV, E.A., dots., red.; BYKOV, R.I., dots., red.; FOMKIN, K.V., kand. geol.-min. nauk, red.; KNYAZEV, V.S., dots., red.; SHIROKOV, V.Ya., st. nauchn. sotr., red.; YUNGAS, S.M., ved. red.; NEVEL'SHTEYN, V.I., ved. red.

[Geological conditions and fundamental characteristics of oil and gas accumulations in the limits of the Epi-Hercynian platform in the south of the U.S.S.R.) Geologicheskie usloviia i osnovnye zakonomernosti razmeshcheniia skoplenii nefii i gaza v predelakh epigertsinskoj platformy iuga SSSR. Pod red. A.A.Bakirova. Moskva, Gostoptekhizdat. Vol.1. [Central Asia] Sredniaia Azia. 1963. 442 p. Vol.3. [Volga Valley portion of Saratov and Volgograd Provinces] Saratovsko-Volgogradskoe Povolzh'e. 1963. 153 p. (MIRA 17:4)

1. Moscow. Institut neftekhimicheskoy i gazovoy promyshlennosti.

BAKIROV, A.A.

Important regularities in the formation and location of oil- and gas-bearing regions and zones of regional oil and gas accumulation in the Turan Plateau. Trudy MINKHIGP no.43:32-49 '63.

(MIRA 17:4)

BAKIROV, A. A.

"Classification of local and regional oil and gas accumulations in the earth crust." ,

report submitted for 22nd Sess, Intl Geological Cong, New Delhi, 14-22 Dec 1964.

VAGIN, S.B.; GORDINSKIY, G.Ye.; GRIBOVA, Ye.A.; DUBROVSKAYA, M.A.; ZHDANOV, M.A., prof.; ZYUZINA, N.G.; KARTSEV, A.A.; KNYAZEV, V.S., dots.; LEONOVA, R.A.; POKROVSKAYA, L.V.; SUDARIKOV, Yu.A.; YUDIN, G.T., dots.; SOKOL'SKAYA, Z.V.; TOMKINA, A.V.; USPENSKAYA, N.Yu., prof.; FOMKIN, K.V., kand.geol-min.rauk; CHERNYSHEV, S.M.; YAVORCHUK, I.V.; BAKIROV, A.A., prof., red.; DEMENT'YEVA, T.A., ved. red.

[Geological conditions and basic characteristics of oil and gas accumulations in the limits of the Epi-Hercynian Platform in the south of the U.S.S.R.] Geologicheskie uslovia i osnovnye zakonomernosti razmeshcheniya skopleniya nefi i gaza v predelakh epigertsinskoj platformy iuga SSSR. Pod obshchei red. A.A.Bakirova. Moskva, Nedra. Vol.2. 1964. 306 p. (MIRA 17:12)

1. Moscow. Institut neftekhimicheskoy i gazovoy promyshlennosti.

BAKIROV, A.I.

Petroleum geological science. Neft. khoz. 42 no.9/10

124-127 5-Q '64.

(S. 17.12)

BAKIROV, A.A.

Main achievements and immediate problems of Soviet oil and gas geology; 100th anniversary of the petroleum industry. Sov. geol. 8 no.1:3-16 Ja '65. (MIRA 18:3)

1. Moskovskiy ordena Trudovogo Krasnogo Znameni institut neftekhimicheskoy i gazovoy promyshlennosti imeni akademika I.M.Gubkina.

KHODALEVICH, A.N.; BREYVEL', M.G.; SAGLO, V.V.; SMIRNOV, G.A.; BAKIROV, A.A.;

Problems of recent tectonics; concerning the results of the 4th Plenary
Session of the Geomorphological Commission. Sov. geol. 8 no.5:140-146
M'y '65. (MIRA 18:7)

1. Ural'skoye geologicheskoye upravleniye, Sverdlovsk (for Khodalevich,
Breyvel', Saglo, Smirnov).

MARKINOV, A. G.

Certain Peculiarities in the Structure of Portions of the Weathering Crust of
Serpentinities on the Kimpersay Massif. Izv. Tomskogo politekhn. in-ta, 74, No 1,
1953, 140-143

In the Kimpersay hyperbasite massif constituting part of the Or-Ilek water-
divide, portions of the deep crust of weathering are composed of ochres, nontronites
and lixiviated serpentinites enjoy the greatest expanse in the contact zone of the
hyperbasites with the gabbroides. (RZhGeol, No 1, 1954)

SO: W-31128, 11 Jan 55

S/007/61/000/001/002/002
B107/B216AUTHOR: Bakirov, A. G.

TITLE: Geochemistry of "hyperbasites"

PERIODICAL: Geokhimiya, no. 1, 1961, 84-89

TEXT: A study of the Kimpersayskiy hyperbasite massif in the Aktyubinskaya oblast' of Kazakhskaya SSR was carried out. The massif consists of peridotitic and dunitic serpentinites, and several gabbroids. Firstly, the authors determined the nickel content. The determinations were performed by the analysts I. P. Onufriyenok and Ye. P. Antonova at the author's institute. The average NiO content of the massif as determined on 198 samples is 0.37%, in peridotite-serpentinites (130 samples), 0.36% and in dunite-serpentinites (68 samples), 0.39%. Nine samples of the contact rocks containing the gabbroids were higher in nickel, with contents of up to 1.08 and 1.15% nickel. Finely divided pentlandite was found microscopically. Nickel was found to be accumulated in the weathering products of the massif: the ochers contained 0.4%, the nontronites 1.3%, and the leached serpentinites 1.1%. The complete analysis of seven dunite-

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serpentinites, six gabbroids and six amphibolites were carried out at the chemical laboratory of the Tomskaya kompleksnaya ekspeditsiya (Tomsk expedition for comprehensive studies). The results of analyses for manganese, sulfur, phosphorus, and titanium are given in the present work: The dunitite-serpentinites contain 0.25-0.40% MnO, 0.32-0.94% S (total), 0.04-0.05% TiO_2 , and traces of up to 0.04% P_2O_5 . The gabbroids and amphibolites contain 0.04-0.25% MnO, traces of up to 0.15% S (total), 0.04-0.65% TiO_2 and traces of up to 0.41% P_2O_5 . Furthermore, a total of 200 samples of 20 rocks and 14 minerals were spectroscopically investigated at the problemnaya laboratoriya geologorazvedochnogo fakul'teta Tomskogo politekhnicheskogo instituta (Special Research Laboratory of the Department of Geology and Prospecting of the Tomsk Polytechnic Institute). Semi-quantitative analyses for Ni, Co, Cu, Zn, Ag, Sr, Ba, Ti, V, and Al in the MCH-28 (ISP-28) spectrograph by comparison with standards were carried out by the spectroscopist L. V. Simakhina. The detection limit was around 0.001%. Nickel: in chromite ores (10 samples), 0.01-0.1%; in pyroxenites (6), hornblendites (5), and gabbroids (21), 0.01-0.5%. Nickel was not detected in the glauconites and opoka-like sandstones of the surrounding

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paleogene. Cobalt: In the serpentinites of various origin (54), 0.001-0.1%; in chromite ores, 0.05-0.5%; in amphibolites (12) and gabbroids, traces of up to 0.1%; in pyroxenites and hornblendites, 0.005-0.1%; in nontronites (8), 0.001-1%; in ochers on serpentinites (7), 0.001-0.1%; in silicified (6) and opalized (2) serpentinites, 0.001-0.1%; in kaolinized gabbroids (7), traces of up to 0.01%; in chloritized serpentinites (4), 0.05-1%. Asbolares contain more than 1% cobalt. Cobalt was not detected in glauconitic and opoka-like sandstones (2), in bauxites (3), montmorillonites (2) and garnierites (6). Copper: In dunite-serpentinites (41), gabbroids of the contact region, pyroxenites, hornblendites and phosphorite conglomerates (2) and in a number of other rocks the copper content lies below 0.005%. In three samples of chloritized serpentinite, two of ocher and one nontronite sample the copper content reached 0.01%. Zinc: In hyperbasites (54), especially in the region of chromium ore deposits with sulfide mineralization, traces of up to 0.1% copper; in peridotite serpentinites of the contact region (8), 0.01-0.05%. Silver: Only found in ten samples of dunite serpentinites in traces of up to 0.01%. Strontium: In most gabbroids and amphibolites, 0.01-0.5%; in hornblendites, 0.001-0.01%; in albitite (1), 0.01-0.05%; aragonite (1), 0.05-0.1%; garnierite, 0.001-0.01%.

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dolomitized and silicified serpentinite (2), 0.01-0.1%. Strontium was not detected in chromites and marine deposits of the paleogene. Barium: In asbolane, up to 0.5%; in chromite ores, 0.001-0.1%; in limonitic pisolites, 0.001-0.05%; in ochers, nontronites, montmorillonites, bauxites, kaolinitized gabbro, gabbro pegmatites (2) and aragonite, 0.001-0.005%. In dolomitized and ocherized serpentinite only traces of barium are contained. No barium was found in serpentinites. Titanium: In amphibolites and bauxites, up to 1%; in chromite ores, 0.001-0.005%, rarely 0.05-0.1%; in individual gabbroids, traces of up to 0.5%; in glauconite-sandstone and phosphorite conglomerates, 0.01-0.1%; in ochers, nontronites and iron pisolites, 0.005-0.01%. Titanium was not detected in chlorites. Vanadium: Chromite ores, hornblendites, pyroxenites contained traces of up to 0.05-0.05%; most of the gabbroids and amphibolites, traces of up to 0.5%. Vanadium was not found in the dunite-serpentinites of the chromite deposits, in sediments of the paleogene and cretaceous and in bauxites. Aluminum: In 16 samples of hyperbasites from the region contacting the chromite deposit and the gabbroids, aluminum was found in quantities of 0.05 to above 1%. Apart from this, Al was not detected in dunite-serpentinites and peridotite-

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serpentinites. Mention is made of publications by D. Misharev, F. Tarkhaneyev, I. V. Butyrin, A. Ye. Fersman, V. N. Lodochnikov, I. I. Ginzburg, M. P. Beletskaya, and V. L. Malyutin. There are 7 Soviet-bloc references.

ASSOCIATION: Tomskiy politekhnicheskii institut im. S. M. Kirova (Tomsk Polytechnic Institute imeni S. M. Kirov)

SUBMITTED: November 19, 1959

Card 5/5

BAKIROV, A.G.

Professor Aleksei Mikhailovich Kuz'min; on his 70th birthday.
Geol. i geofiz. no.9:127-128 '61. (MIRA 14:11)
(Kuz'min, Aleksei Mikhailovich, 1891-)

BAKIROV, A.G.

Connection between ore formation and latitudinal structures of the Urals. Dokl. AN SSSR 149 no.5:1145-1146 Ap '63.

(MIRA 16:5)

1. Tomskiy politekhnicheskii institut im. S.M.Kirova. Predstavleno akademikom V.I.Smirkovym.

(Ural Mountains—Ore deposits)

IL'YASH, Sergey Sergeyevich; BAKIROV, A.G., eds., red.

[Petrology of the gabbro syenite complex of Gornaya Shoriya]
Petrologiya Gabbro-Sienitovogo kompleksa Gornoj Shorii.
Tomsk, Izd-vo Tomskogo univ., 1964. 128 p. (MIRA 18:9)

BAKIROV, A.G.

Connection between pyrite mineralization and the magnetite and
sulfide manifestations in the ultrabasites of the Southern
Urals. Trudy Inst. geol. UFAN SSSR no.70:185-192 '65.
(MIRA 18:12)

BAKIROV, B.Z., mayor meditsinskoy sluzhby

Treatment of lumbosacral radiculitis. Voen.med.zhur. no.3:88
'59. (MIRA 12:6)

(NERVES, SPINAL--DISEASES)

BAKIROV, E. A. Cand Geol-Min Sci -- (diss) "The geological structure and prospects of petroleum and gas-bearing of the Irtys^h~~h~~ and Tobol inter-river area." Mos, 1958. 18 pp (Min of Higher Education USSR. Mos Order of Labor Red Banner Petroleum Inst im Academician I. M. Gubkin. Chair of General Geology), 110 copies (KL, 13-58, 93)

BAKIROV, E.A.; TABASARANSKIY, Z.A.

Certain features of the formation of local structures in the
Turan Platform. Neftegaz. geol. o geofiz. no.8:22-24 '63.

(MIRA 17:3)

1. Moskovskiy institut neftekhimicheskoy i. gazovoy promyshlennosti
im. akademika Gubkina.

MUZYCHENKO, Nina Mikhaylovna; YURKEVICH, Tat'yana Yakovlevna; BAKIROV, A.A., prof., glav.red.; RYABUKHIN, G.Ye., prof., red.; USPENSKAYA, N.Yu., prof., red.; ZHDANOV, M.A., prof., red.; DOLITSKIY, V.A., dots., red.; SPIKHINA, A.M., kand. geol. nauk, red.; YUDIN, G.T., kand. geol.-min. nauk, red.; TABASARANSKIY, Z.A., dots., red.; BAKIROV, E.A., dots., red.; BYKOV, R.I., dots., red.; FOMKIN, K.V., kand. geol.-min. nauk, red.; KNYAZEV, V.S., dots., red.; SHIROKOV, V.Ya., st. nauchn. sotr., red.; YUNGAS, S.M., ved. red.; NEVEL'SHTEYN, V.I., ved. red.

[Geological conditions and fundamental characteristics of oil and gas accumulations in the limits of the Epi-Hercynian platform in the south of the U.S.S.R.) Geologicheskie uslovia i osnovnye zakonomernosti razmeshcheniia skoplenii nefi i gaza v predelakh epigertsinskoj platformy iuga SSSR. Pod red. A.A.Bakirova. Moskva, Gostoptekhizdat. Vol.1. [Central Asia] Sredniaia Aziia. 1963. 442 p. Vol.3. [Volga Valley portion of Saratov and Volgograd Provinces] Saratovsko-Volgogradskoe Povolzh'e. 1963. 153 p. (MIRA 17:4)

1. Moscow. Institut neftekhimicheskoy i gazovoy promyshlennosti.

BAKIROV, I., inzh.

Accelerating the process of finishing wall panels. Zhil. stroi.
no.11:13 '64 (MIRA 18:2)

AVVAKUMOV, V.A.; BAKIROV, K.Kh.; DEMCHUK, L.V.; IVANOV, Yu.A.; NEVOLIN,
H.V.; POBYTALOV, D.I.; SHAKHIDZHANOV, Yu.S.; YVENTOV, Ya.B.

New data on the geology of the Aktyubinsk part of the Ural
Mountains region and western Mugodzhur Hills and the outlook
for oil and gas. Sov. geol. 3 no. 11:68-84 N '60.

(MIRA 13:12)

1. Vsesoyuznyy nauchno-issledovatel'skiy geologorazvedochnyy
neftyanoy institut.

(Aktyubinsk Province--Geology)

BAKIROV, K.Kh.; CHIMBULATOV, M.A.; TUKHVATULLIN, R.K.; POPONIN, I.R.

Possibilities of using breas of western Kazakhstan for obtaining
petroleums. Trudy Inst. nefti AN Kazakh.SSR 4:69-72 '61. (MI.A 16:4)
(Kazakhstan--Tar)

BAKIROV, Mamed Emin; TALIBI, Mamed Alekper

[Selenium photocells] Selen fotoelementleri. Baky,
Azerbajchan SSR Elmler Akademijasy Neshriyyaty, 1964.
90 p. [In Azerbaijani] (MIRA 18:5)

BAKIROV, M.Ya.; TALIBI, N.A.; ABDULLAYEV, G.B.

Effect of the electroforming, thermo- and electrochemical processing on physical processes occurring in selenium photoelectric cells [in Azerbaijani with summary in Russian]. Izv. AN Azerb. SSR. Ser. fiz.-tekh. i khim. nauk no. 6:43-53 '58. (MIRA 12:2)
(Photoelectric cells) (Selenium) (Electrochemistry)

ABDULLAYEV, G.B.; BAKIROV, M.Ya.; TALIBI, H.A.

Effect of the area and material used in the upper electrode on
the photoelectric properties of selenium photoelectric cells [in
Azerbaijani with summary in Russian]. Izv. AN Azerb. SSR. Ser. fiz.-
tekh. i khim. nauk no.1:7-10 '59. (MIRA 12:6)
(Photoelectric cells)

BAKIROV, M.Ya.; ABDULLAYEV, G.B.; NASIROV, Ya.N.; TALIBI, M.A.

Studying the effect of certain factors on the characteristics
of selenium photocells. Izv. AN Azerb. SSR. Ser. fiz.-mat. i tekhn.
nauk no.5:65-74 '59. (MIRA 13:3)
(Selenium cells)

BAKIROV, M.Ya.; ABDULLAYEV, G.B.; NASIROV, Ya.N.; TALIBI, M.A.

Effect of the degree of crystallization of selenium on the
characteristics of photoelectric cells. Izv. AN Azerb. SSR Ser.
fiz.-mat. i tekhn. nauk no.5:93-99 '59. (MIRA 13:3)
(Selenium cells)

ABDULLAYEV, G.B.; BAKIROV, M.Ya.; GASIMOV, R.B.; NASIROV, Ya.N.

Investigating the formation of a p-n junction in selenium
photocells. Part 1: Effect of the material of the top electrode.
Izv. AN Azerb. SSR. Ser.fiz.-mat. i tekhn. nauk no.4:66-72 '60.
(MIRA 14:3)

(Photoelectric cells) (Selenium)

ABDULLAYEV, G.B., BAKIROV, M.Ya., GELLER, I.Kh., NASIROV, Ya.I.

Effect of bromine on the characteristics of selenium photocells.
Dokl.AN Azerb.SSR 16 no.4:323-326 '60. (MIRA 13:7)

1. Institutu fiziki AN Azerbaydzhanskoy SSR.
(Bromine) (Photoelectric cells)

ABDULLAYEV, G.B.; GASIMOV, R.B.; BAKIROV, M.Ya; NASIROV, Ya.N.

Heat-resistant selenium photocells. Izv.AN Azerb.SSR.Ser.fiz.-
mat.i tekhnauk no.5:79-84 '60. (MIRA 14:4)

(Photoelectric cells) (Selenium)

9.4160
26.1512

S/194/61/000/010/054/082
D256/D301

AUTHORS: Abdullayev, G.B., Bakirov, M.Ya., Gasymov, R.B. and Nasirov, Ya.N.

TITLE: Selenium photo-cells with layers of CdO, CdS, CdSe and CdTe

PERIODICAL: Referativnyy zhurnal. Avtomatika i radioelektronika, no. 10, 1961, 28-29, abstract 10 G196 (Izv. AN AzerbSSR. Ser. fiz.-matem. i tekhn. n., 1960, no. 6, 77-83)

TEXT: Results are presented of investigations of n-type selenium photo-cells with layers of CdO, CdS, CdSe and CdTe of high sensitivity in the visible region of the spectrum. The photo-effect in these cells occurs due to p-n transitions at the borders Se-CdO, Se-CdS, Se-CdSe and Se-CdTe. In preparing the photo-cells the material of the top electrode was of no significant importance and did not require special forming. The photo-current of the mentioned

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Selenium photo-cells...

31831
S/194/61/000/010/054/032
D256/D301

photo-cells shows a linear increase up to about 10,000 L and above this value the linearity breaks down. The photo-emf characteristics show at low light intensities of 10-15 L a linear rise saturating at 1000 L. The photo-cells have coinciding spectral characteristics and a maximum in the region 0.56-0.58 microns. Increasing the temperature from zero to 100°C the photo-emf shows a practically linear decrease, with a highest value of $\Delta V / \Delta t$ for CdTe-0.002 V/°C, and lowest for CdSe-0.001 V/°C. The temperature dependence of the photo-current is different for different layers, for CdSe in the region 0-100°C the photo-current is practically independent of temperature, while for CdS the current at 100°C is 30% higher than at 20°C. In samples of CdO layers the photo-current reaches its maximum at 25°C; for CdTe at 60°C and then decreases and at 100°C its value is respectively ~ 75% and ~ 50% of the maximum value. 11 references. [Abstracter's note: Complete translation]

Card 2/2

BAKIROV, M. Ya. Cand Phys-Math Sci -- "Study of the formation and nature of
P-N junction in selenium photocells." Baku, 1961 (Min of Higher Education USSR.
Azerbaijani State Univ im S. M. Kirov). (KL, 4-61, 182)

24.3300
26.2420

S/058/62/000/003/054/092
A061/A101

AUTHORS: Abdullayev, G. B., Bakirov, M. Ya., Gasymov, R. B., Nasirov, Ya. N.

TITLE: Selenium photocells with CdO, CdS, CdSe, and CdTe layers

PERIODICAL: Referativnyy zhurnal, Fizika, no. 3, 1962, 22, abstract 3G184
("Izv. AN AzerbSSR, Ser. fiz.-matem. i tekhn. n.", 1960, no. 6, 77-83, Azerb. summary)

TEXT: Selenium photocells were developed, in which CdO, CdSe, CdS and CdTe films about $5 \cdot 10^{-5}$ cm thick were sputtered in vacuum onto the selenium crystal surface before mounting the upper electrode. The photo-emf and the short-circuit current were determined as functions of exposure to light. The temperature and spectral characteristics of the photocells were also determined. The photo-emf was found to arise by the contact of two semiconductors with different types of conductivity. The upper electrode material is not important here.

[Abstracter's note: Complete translation]

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38366

S/058/62/000/005/095/119
A061/A101

9.4160

26.1512

AUTHORS: Bakirov, M. Ya., Gasymov, R. B.

TITLE: p-n junction in selenium photoelectric cells

PERIODICAL: Referativnyy zhurnal, Fizika, no. 5, 1962, 36-37, abstract 5E289
("Izv. AN AzerbSSR. Ser. fiz.-matem. i tekhn. n.", 1961, no. 3, 75-80, Azerb. summary)

TEXT: The electrical and photoelectric characteristics of a selenium photoelectric cell with a p-n junction obtained by applying Cd to the surface of polycrystalline p-type Se have been investigated experimentally. In a diode circuit, at a voltage V of the order of kT/q , the dependence of the current I on V is linear. In the range $0.1 < V < 0.8$ v, $I = I_0 \exp(qV/\beta kT)$, $I_0 = 4.6 \cdot 10^{-7}$ a/cm², and $\beta = 4.1$. At high voltages, Ohm's law is observed due to the effect of the resistance of the semiconductor material thickness. No saturation current is observed in the inverse direction. The dependence of the short-circuit current on the no-load voltage under illumination is given by the same formula as applies also to the dark characteristic at $0.1 < V < 0.8$ v; however,

Card 1/2

p-n junction in selenium photoelectric cells

S/058/62/000/005/095/119
A061/A101

$I_0 = 1.5 \cdot 10^{-6}$ a/cm², and $\beta = 3$. The spectrum sensitivity has an absolute maximum at λ 0.56 μ , and an additional maximum at 0.71 μ . The half-life period of the spectrum sensitivity distribution corresponds to 0.63 μ . The maximum power output of the load, the optimum loading impedance, and the efficiency of the photoelectric cell fit the general theory. At a solar radiation of 100 mw/cm², the short-circuit current is 3 ma/cm², the no-load emf is 0.6 v, and maximum efficiency is 1%.

Yu. Ravich

[Abstracter's note: Complete translation]

Card 2/2

BAKIROV, N.

Letter to the editor. Prom. energ. 16 no.12:48 D '61.

(MIRA 14:12)

1. Glavnyy inzhener Ufimskogo khimicheskogo zavoda.
(Electric current rectifiers)

9.4/60

S/058/62/000/006/051/136
A061/A101

AUTHORS: Abdullayev, O. B., Gasymov, R. B., Bakirov, M. Ya.

TITLE: Selenium photocells with GaSe layer

PERIODICAL: Referativnyy zhurnal, Fizika, no. 6, 1962, 25, abstract 60212
("Dokl. AN AzerbSSR", 1961, v. 17, no. 8, 677 - 680, Azerb. summary)

TEXT: The photocells under consideration have been produced with a p-n junction formed on the contact of Se and GaSe. The presence of the latter was proved by electron diffraction. Apart from the principal maximum (0.56μ), these photocells display an additional maximum at 0.44μ , the relative magnitude of which depends on the thickness of metallic Ga applied to the Se film.

Ya. Oksman

[Abstracter's note: Complete translation]

Card 1/1

L 11047-63

ENT(1)/EWG(k)/BDS/EEC(b)-2 AFPTC/ASD/ESD-3 Pz-4 AT/IJP(C)

ACCESSION NR: AT3002972

S/2927/62/000/000/0005/0012 48

AUTHOR: Abdullayev, G. B.; Bakirov, M. Ya.; Gasy*mov, R. B.; Bakhy*shov, A. E. 67

TITLE: Investigating the nature of p-n junction in selenium photocells⁸⁵
[Report at the All-Union Conference on Semiconductor Devices, Tashkent, 2-7 October 1961]

SOURCE: Elektronno-dy*rochny*ye perekhody* v poluprovodnikakh. Tashkent, Izd-vo AN UzSSR, 1962, 5-12

TOPIC TAGS: selenium photocell, p-n junction of photocell

ABSTRACT: Although selenium photocells have been widely used, many physical phenomena transpiring in them are not entirely clear. Experiments have shown that the junction is formed at the contact of two different semiconductors (e.g., Se and CdSe); the theory of such junctions has been developed. The article describes experimental studies of the p-n junction in and aging of selenium photocells. Also attempts to create a highly sensitive and stable photocell by coating Se with an electron-type semiconductor are reported. Photocurrent and photo-emf of Se coated with Al, Cu, Zn, Ga, Ag, Cd, In, Sn, Au, Hg, Pb, Bi were measured. Effects of thermal and electrical forming on the photocell characteristics were investigated.

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L 11047-63

ACCESSION NR: AT3002972

It was found that aging of selenium photocells is due to excessive thickening of the selenide coating (over the optimum thickness of 5×10^{-5} cm). Four sets of artificial n-layer electrodes, Se-GaSe, Se-InSe, Se-CdSe, and Se-HgSe, were investigated in detail. Current-voltage, sensitivity spectral distribution, and illumination characteristics were determined for the above combinations (curves given), as well as all pertinent electrical and photoelectrical data (tabulated). With a solar-radiation intensity of 10 milliwatt per sq cm, current up to 3 ma per sq cm, and emf 0.6 v (efficiency about 1 per cent) were obtained for Se-CdSe combination. It is concluded that, in the selenium photocells, the p-n junction can be obtained by coating selenium with a thin layer of an electron-type semiconductor. Orig. art, has: 5 figures, 5 formulas, and 1 table.

ASSOCIATION: Akad. nauk SSSR(Academy of Sciences SSSR); Akad nauk UzSSR(Academy of Sciences UzSSR); Tashkentskiy gosuniversitet im. V. I. Lenina (Tashkent State University)

SUBMITTED: 00

DATE ACQ: 15May63

ENCL: 00

SUB CODE: 00

NO REF SOV: 010

OTHER: 003

kes|u
Card 2/2

h2038

S/233/62/000/003/006/010

1011/1211

AUTHORS: Pakirov, M.Ya., Gasymov, R.B.

TITLE: Selenium photoelements with a mercury selenide layer

PERIODICAL: Akademiya nauk Azerbaydzhanskoy SSR. Izvestiya. Seriya fiziko-matematicheskikh i tekhnicheskikh nauk, no.3, 1962, 89-94

TEXT: The specimens tested were made of: (1) technical p-type selenium with 10^{15} holes per cm^3 , mobility at room temperature of $0.052 \frac{\text{cm}^2}{\text{Vsec}}$ and forbidden band width of approximately 2eV; (2) n-type mercury selenide with 10^{17} electrons per cm^3 , mobility at room temperature of $90000 \frac{\text{cm}^2}{\text{Vsec}}$, forbidden band width of 0.3eV. The mercury selenide layer of approximately 1μ width was spread on the crystallised hexagonal selenium with an aluminium base by evaporation at 10^{-5} mm Hg vacuum. The HgSe used was obtained by synthesis. Cd was used for the upper electrode. It is seen from the volt-

Card 1/4

S/233/62/000/003/006/010

I 011/1211

Selenium photoelements...

ampere characteristic that the cut-off voltage is 0.35V and the series internal resistance as determined by the linear section in the forward voltage branch is 18 ohms. The inverse current has no saturation. At voltages of the order of magnitude of $\frac{kT}{q}$ the forward and inverse characteristics are linear and the differential resistance at zero voltage, $R_0 = 10^4$ ohms. In the 0.1-0.5V forward voltage range the characteristic is given by

$$I_f = I_0 \exp\left(\frac{qV_f}{\beta kT}\right), \quad (1)$$

$$I_0 = 3 \times 10^{-6} \frac{\text{A}}{\text{cm}^2}; \quad \beta = 2.1$$

The wave length of the maximum spectral sensitivity of the investigated photoelements coincides with that of the common selenium ones - 0.56 μ . There is a considerable increase in sensitivity in the investigated cells (some 20%) in the 0.8 - 1.4 μ range. Photoele-

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S/233/62/000/003/008/010

I 011/I 211

Selenium photoelements...

ments with an HgSe layer can be used in infra-red engineering. The short-circuit current depends linearly on the illumination in the 0-10⁴ lux range (a tungsten lamp with light temperature of 2840°K was used). The open circuit voltage first increases linearly with the illumination and then reaches saturation. The current of the carriers generated by the light and separated by the p-n junction field is given by

$$I_f = I_o \exp \frac{qV_{oc}}{kT} \quad (3)$$

$$I_o = 2.5 \times 10^{-6} \frac{A}{cm^2}; \quad \beta = 3.6$$

and V_{oc} is the open-circuit voltage. From here one gets

$$R_o = \frac{kT}{qI_o} = 3.4 \times 10^4 \text{ ohms.}$$

The reasons for the difference between the results as obtained from the volt-ampere diode characteristic and those obtained from the last relation are not clear. The temperature coefficient of

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S/233/62/000/003/006/010

I 011/1211

Selenium photoelements...

the open-circuit voltage is -2.7×10^{-3} V/degree in the HgSe layer photoelements and -1.1×10^{-3} V/degree in the common photoelements. The short-circuit current decreases with an increase in the temperature in the investigated specimens, while in common elements its decrease starts at 80°C. These results are true for 0-100°C range. There are 6 figures and 1 table. The most important English-language references read as follows: Lakschmann T.K. Proc. of the IRE, 9, 1646, 1960; Tubota H., Suzuki H.J. Phys. Soc. Japan, 14, No.1, 1959.

Card 4/4

S/233/62/000/006/006/008
E010/E420

AUTHORS: Abdullayev, G.B., Bakirov, M.Ya., Gasymov, R.B.

TITLE: A study of the effect of thickness of p- and n-layers on characteristics of selenium photocells

PERIODICAL: Akademiya nauk Azerbaydzhanskoy SSR. Seriya fiziko-matematicheskikh i tekhnicheskikh nauk, no.6, 1962, 63-68

TEXT: A selenium photocell consists of a metallic backing, a layer of polycrystalline selenium and an upper electrode. The thickness of semiconductors, such as selenium, is one of the main factors affecting characteristics of photocells. Selenium with a purity of 99.99999% was applied to an aluminum plate and $\sim 0.1 \mu$ thick cadmium layer served as the upper electrode. These photocells were subjected to illumination of 5000 lux intensity at 20°C . The generated photo-emf V and photocurrent I were measured. A linear growth of the series resistance R with increasing thickness of selenium layer is observed. Both photo-emf and photocurrent values pass through a maximum at 50μ thickness of selenium layer and then decrease. The effect of thickness of

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A study of the effect ...

S/233/62/000/006/006/008
E010/E420

an n-layer on the efficiency of selenium photocells was also determined in order to study the nature of their ageing. A layer of n-type CdSe was applied to the surface of crystalline selenium. Measurements of the variation of photo-emf, V , and photocurrent, I , with thickness of the n-layer show that the optimum value of the latter is about 5×10^{-5} cm. Hence the nature of the ageing process of photocells is explained: the n-layer of CdSe increases with time on account of diffusion of Se into the Cd layer and this leads to the deepening of the p-n junction resulting in the reduced efficiency of the photocells. There are 5 figures.

Card 2/2

ABDULLAYEV, G.B.; BAKIROV, M.Ya.; GASIMOV, R.B.

Effect of the thickness of p and n-films on the characteristics of
selenium photocells. Izv. AN Azerb. SSR. Ser. fiz.-mat. i tekhn.
nauk no.6:69-73 '62. (MIRA 16:6)
(Photoelectric cells) (Selenium)

BAKIROV, M.Ya.; GASIMOV, R.B.

Relaxation processes in selenium photocells with artificial
p-n-junctions. Izv. AN Azerb. SSR. Ser. fiz.-mat. i tekhn. nauk
no.5:69-74 '63. (MIRA 17:3)

ABDULLAYEV, G.B.; BAKIROV, M.Ya.; TALIBI, M.A.; GASIMOV, R.B.

Selenium photoelements with saturation current, Izv. AN
Azerb. SSR. Ser. fiz.-mat. i tekhn. nauk no. 3:77-83 '63.

(MIRA 16:11)

ACCESSION NR: AP4012599

S/0233/63/000/005/0069/0074

AUTHORS: Bakirov, M. Ya.; Gasy*mov, R.B.

TITLE: Investigating the relaxation processes in selenium cells with artificial P-N junctions

SOURCE: AN AzerbSSR. Izv. Ser. fiz.-matem. i tekhn. nauk, no. 5, 1963, 69-74

TOPIC TAGS: relaxation process , selenium cell, light intensity, photocurrent, P-N junction, barrier capacity, square pulse, inertness, recombination, current carrier, oscillograph

ABSTRACT: Selenium cells are used as receivers in most of the photometric instruments, as they can be used in conditions of rapidly changing illumination. But their shortcoming is a high degree of inertness. According to the theory (S.M. Ryvkin, Journal of Technical Physics, 27, 1676, 1957), the relaxation time in barrier conditions is determined either by the lifetime of the

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ACCESSION NR: AP4012599

minority carriers or the charging time of the barrier capacity. Cited in this project are the investigation results of the relaxation processes in photocells with CdO, CdS, CdSe, HgSe and GaSe layers. The investigation involved the use of the tau-metric method. Photo-emf is a function of the temperature, intensity and wavelength of the exciting light. A change in the temperature, intensity and wavelength of the exciting light therefore also changes the relaxation time. In selenium cells with artificial P-N junctions the inertness time depends on the N-layer material and lies in the range of $2.1-9.2 \times 10^{-3}$ seconds. The inertness period diminishes with increasing light intensity, and increases with the increasing wavelength of the light. "The authors are grateful to A. Kh. Khalilov for his assistance in the measurements and discussion of the results." Orig. art. has: 5 figures, 1 formula and 3 tables.

ASSOCIATION: None

Card 2/3

L 1121-66 EWT(m)/ETC/EAG(m)/EWP(t)/EWP(b) IJP(c) RDW/JD/QS

ACCESSION NR: AT5020474

UR/0000/64/000/000/0284/0289

AUTHORS: Abdullayev, G. B. Bakirov, M. Ya. Gasymov, R. B.

TITLE: Investigation of surface contact phenomena in selenium in contact with certain metals

SOURCE: Meshvurovskaya nauchno-tekhnicheskaya konferentsiya po fizike poluprovodnikov (poverkhnostnyye i kontaktnyye yavleniya). Tomsk, 1962. Poverkhnostnyye i kontaktnyye yavleniya v poluprovodnikakh (Surface and contact phenomena in semiconductors). Tomsk, Izd-vo Tomskogo univ., 1964, 284-289

TOPIC TAGS: selenium, photocell, photo current, photodiode, photoconductive cell, group VI element, contact potential, cadmium, indium, mercury, gallium, lead, zinc

ABSTRACT: The mechanism of the aging process in selenium photocells was studied. Cells made of Se and the metals Cd, In, Hg, Ga, Pb, and Zn were investigated. Electron-diffraction photographs of the binary contact between Se and the various metals showed it to consist of the selenides CdSe, InSe, HgSe, GaSe, PbSe and ZnSe. The sensitivity of photocells was determined as a function of the time and temperature and is shown graphically in Fig. 1 on the Enclosure. The effect of the depth of a deposited p-n junction on the response of Se photocell is shown in Fig. 2 on the Enclosure. It is concluded that the aging process consists of the growth of an

L 1121-66

ACCESSION NR: AT5020474

n-layer on the surface of the photocell. Orig. art. has: 4 graphs and 2 equations.

ASSOCIATION: none

SUBMITTED: 06Oct64

ENCL: 02

SUB CODE: EO

NO REF SOV: 006

OTHER: 003

Cord 2/4

L 1121-66

ACCESSION NR: AT5020474

ENCLOSURE: 01

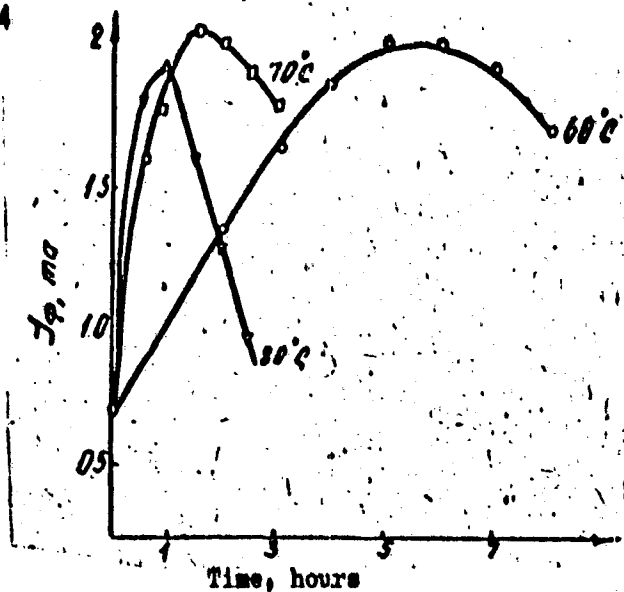
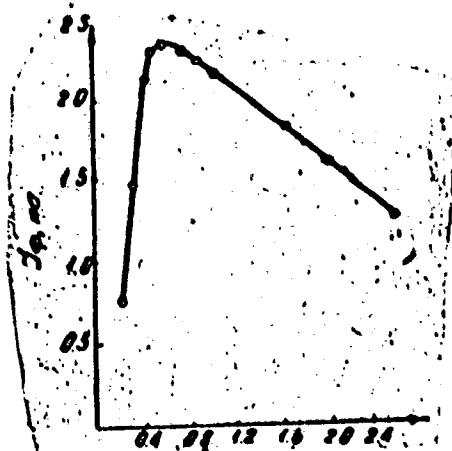


Fig. 1. Sensitivity of Se photocell as a function of temperature and time
Card 3/4

I 1121-66
ACCESSION NR: AT5020474

ENCLOSURE: 02



Thickness, microns

Fig. 2. Effect of an artificially deposited n-layer on the sensitivity of Se photocell

Cord 4/4

L 16505-66 EWT(1)/EWT(m)/ETC(f)/ENG(m)/ENP(t) IJP(c) RLW/JD/GS/AT
 ACC NR: AT6001334 SOURCE CODE: UR/0000/65/000/000/0085/0094

AUTHOR: Abdullayev, G. B.; Bakirov, M. Ya.; Talibi, M. A.; Gasymov, R. B.

ORG: *none*

TITLE: Photoeffect in selenium pn transitions

SOURCE: AN AzerbSSR. Institut fiziki. Selen, tellur i ikh primeneniye (Selenium, tellurium and their utilization). Baku, AN AzerbSSR, 1965, 85-94

TOPIC TAGS: selenium, intermetallic compound, impurity conductivity, semiconducting material, spectrum analysis, temperature dependence, diffusion coefficient, metal physics

21,441.55
 ABSTRACT: Photoelectric properties of selenium photocells containing Cd, Pb, Ga, In, Zn and Hg as contact films were studied. Diffraction analysis of the junctions showed that the selenide intermetallic compound formed in each case; these junctions exhibited n-type conductivity and caused photovoltaic effects due to pn transitions. Spectral characteristics are given for Se with CdSe, InSe and HgSe, showing primary and secondary maxima for relative photocurrent (%), the secondary maximum being dependent on the type of element. Photosensitivity showed a dependence on time, sample

Card 1/2

L 16505-66

ACC NR: AT6001334

2

thickness and temperature. At constant temperature, the initial sensitivity rose, reached a maximum (about 2 ma) and then dropped sharply with time; the sharpest changes occurred at the higher temperatures. This held true for different thicknesses: the maximum was at 0.5μ . The thickness of the n-type layer was expressed by $l = (2Dt)^{1/2}$, where D is the diffusion coefficient and t is time. To prevent aging of the photocells it was recommended that the optimal thickness of the n-layer be kept at 0.5 to 1μ and the upper electrode have a small diffusion coefficient; aging was eliminated in CdSe or CdS by using elements of 0.5μ with Au of 0.1μ thickness for the upper electrode. For zero illumination the temperature dependence of the volt-ampere curves was determined for junctions of 99.99999% Se. The density of reverse current decreased with increase in temperature and attained saturation in the 353 to 413°K range. Activation energy (ΔE) was obtained from $\ln I$ vs $1/T$ plot since $I = \exp(-\Delta E/kT)$ and came out to 0.6 ev. The volt-ampere characteristics were also given for different amounts of illumination at 373°C where the current increased proportionally with illumination. These photodiodes were rated superior to standard selenium photoelements on the basis of sensitivity and response. Orig. art. has: 6 figures, 6 formulas.

SUB CODE: 11,09,20/

SUBM DATE: 10Mar65/

ORIG REF: 010/

OTH REF: 009

High purity SE

Card 2/2 SM

44, 18

L 02430-67 EWT(m)/EWP(t)/ETI IJP(c) JD

ACC NR: AP6029534

SOURCE CODE: UR/0046/66/012/003/0365/0366

AUTHOR: Bakirov, M. Ya.; Khalilov, Kh. M.

50
8

ORG: Physics Institute, AN Azerbaydzhan SSR, Baku (Institut fiziki, AN Azerbayd-shanskaya SSR)

TITLE: Effect of ultrasonic treatment on the characteristics of selenium rectifiers

SOURCE: Akusticheskiy zhurnal, v. 12, no. 3, 1966, 365-366

27

TOPIC TAGS: selenium rectifier, photoelectromotive force, volt ampere characteristic, current density, ultrasonic effect

ABSTRACT: The effect of ultrasonic treatment on the characteristics of selenium rectifiers was studied by exposing specially prepared selenium samples for 3, 5, and 10 minutes to sonic waves. The experimental results show that 1) the direct and reverse volt-ampere characteristics of the selenium rectifiers substantially improve with prolongation of the ultrasonic treatment to 5 min and gradually worsen with prolongation beyond 5 min., 2) the density of the direct current becomes three times higher and of the reverse current two times lower with ultrasonic treatment of 5 min. duration, 3) the photocurrent value becomes approximately four times higher with ultrasonic treatment of 5 min. duration and gradually decreases with prolongation

Cord 1/2

UDC 534.29:621.314.634

L 02430-67

ACC NR: AP6029534

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beyond 5 min., and 4) the maximum increase of the photoelectromotive force is 60% at ultrasonic treatments of 5 min duration. The experimental results seem to show that the optimum time for ultrasonic treatment of surfaces of selenium rectifiers is 5 minutes. Orig. art. has: 3 figures.

SUB CODE: 20,09/ SUBM DATE: 10Mar65/ ORIG REF: 005

Card 2/2 *gd*

L 21226-66 EWT(m)/ETC(f)/T/EWP(t)/ENG(m) IJP(c) RDM/JD

ACC NR: AF6003822

SOURCE CODE: UR/0181/66/008/001/0293/0295

AUTHOR: Bakirov, M. Ya.; Dzhaliilov, N. Z.

ORG: Institute of Physics AN AzSSR, Baku (Institut fiziki AN AzSSR)

TITLE: Space-charge limited current in selenium single crystals

SOURCE: Fizika tverdogo tela, v. 8, no. 1, 1966, 293-295 5, 18

TOPIC TAGS: selenium, single crystal, space charge, semiconducting film, volt ampere characteristic, electron trapping, photoconductivity, semiconductor carrier

ABSTRACT: The authors investigated the space-limited current in single-crystal selenium films and determined the capture-level parameters under the assumption that the previously observed power-law volt-ampere characteristic of selenium is due to the charges injected from the contacts. The single crystals were grown from the vapor phase in the form of plates 20--30 μ thick and area (2--4) $\times 10^{-2}$ cm^2 . Their resistivity at room temperature was of the order of 10^6 ohm cm. The volt-ampere characteristic shows that in weak fields the current increases in proportion to the applied voltage, and in strong fields the dependence of the current on the voltage is that of a power law. At liquid-nitrogen temperature, in the region 10^3 -- 10^4 v/cm, the dependence of the current on the voltage is quadratic.

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ACC NR: AP6003822

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Above 10^4 v/cm the growth is steeper. The slope of the characteristic decreases with increasing temperature. The trap density is estimated at 10^{14} cm⁻³ and the trapping level at 0.56 ev. Application of illumination to the sample has shown that at fields weaker than 10^3 v/cm, when the number of carriers generated by the light exceeds the number of carriers injected by the space charge, the dependence of the current on the voltage remains ohmic. In stronger fields, the photocurrent tends to saturation. No saturation of the photocurrent is observed at low temperatures. It is thus concluded that in single-crystal layers of selenium, as in amorphous and polycrystalline selenium, the carriers are emitted by the ohmic electrodes and the current produced by them is limited by the space charge of the carriers themselves. The space charge is apparently responsible for other phenomena in selenium. The authors thank G. B. Abdullayev for a discussion of the results and G. M. Aliyev for supplying the single-crystal selenium. Orig. art. has: 2 figures and 2 formulas.

SUB CODE: 20/

SUBM DATE: 06May65/

ORIG REF: 008/

OTH REF: 007

Cord 2/2 dha

BAKIROV, N. U.: Master Tech Sci (diss) -- "The computation of the distribution
of the coefficient of convective heat transmission in service and distribution
axial-symmetric nozzles". Kazan', 1958. 10 pp (Min Higher Educ USSR, Kazan'
Aviation Inst), 150 copies (KL, No 10, 1959, 125)

AUTHOR: Bakirov, N. U.

SOV/147-58-4-8/15

TITLE: Convective Heat Transfer in Convergent-Divergent Axi-Symmetrical Nozzles (Konvektivnyy teploobmen v suzhayushchetsya i rasshiryayushchetsya osesimmetrichnykh soplakh)

PERIODICAL: Izvestiya Vysshikh Uchebnykh Zavedeniy, Aviatsionnaya tekhnika, 1958, Nr 4, pp 62-71 (USSR)

ABSTRACT: The article represents the experimental results of investigations into the problem of the convective heat transfer from a gas flowing through sonic (convergent) and supersonic (convergent-divergent) nozzles. The results are then compared with other investigations (as quoted in References). From the analysis of the results, the author develops generalized equations giving the axial variation of the convective heat transfer coefficient from the gas to the wall in the case of axially symmetric flows with turbulent boundary layer. Fig 1 shows diagrammatically the experimental set up for the convergent nozzle with the leading dimensions of the apparatus:
1 - Supply of air from the compressor; 2 - air release valve; 3 - receiver; 4 - distilled water boiling tank;

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5 - flow-meter; 6 - electric heaters; 7 - combustion chamber; 8 - mixer, 9 - manometer; 10 - thermocouples; 11 - tubes; 12 - experimental heat exchanger; 13 - discharge; 14 - cooling water outflow; 15 - condenser; 16 - cooling water inflow; 17 - flow meter vessels; 18 - gas release valve.

The experimental procedure was as follows: compressed air from the receiver (3) was fed to the combustion chamber (7) using kerosene. Combustion products were then passed through the mixer, consisting of a series of perforated transverse plates, hence through the nozzle (9) surrounded by the heat exchanger (12) and then discharged into the atmosphere (13). The nozzle was made of non-corrosive steel sheeting, the wall thickness being 1 mm. The inner surface (in contact with gas) was carefully polished, while the outer surface was in contact with water and this was arranged in 8 separate sections along the axis of the nozzle (see Fig 2). Each of these sections had a separate connecting tube (1) with the condenser (15), and the condensed liquid was then drained

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Nozzles

into the metering vessel (17). To eliminate heat losses, the exchanger was insulated from the atmosphere by a water vapour jacket (14), the water being kept boiling by means of the heater (8). Fig 2 shows the heat exchanger used in the experiments; 1 - vapour outlet to the condenser; 2 - labyrinth; 3 - anti-foam gauzes; 4 - water level indicators; 5 - gauze; 6 - test chamber; 7 - interconnecting holes; 8 - electric heaters; 9 - experimental nozzle; 10 - tube; 11 - stays; 12 - experimental sections; 13 - heat insulation; 14 - water vapour jacket; 15 - vapour outlet from the jacket. To test the equipment a heat balance was made before the experiments started. This was done as follows: an electric heater was installed at the last section (at the throat) which is the place where the heat conductivity is the greatest, and the heat supplied was balanced against the condensate obtained, the balance being within 4%. The remaining sections were checked only against leakages, using hot water for the purpose. The temperature of the gas at the inlet to the nozzle was measured by means of a thermo-couple, chromel-kopel (the

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latter consisting of 56.5% Cu, 43.5% Ni) shielded against radiation heat (which, however, was found to be negligible). The wall temperature (on the gas side) was deduced from the amount of the condensate produced. Heat conduction along the wall (and in the boundary layer) was neglected.

Experiments were carried out under the following conditions: gas flow 50-500 gr/sec; temperatures: $t_o = 250$ to 450°C ; temperature factor $T_w/T_o = 0.55$ to 0.75 .

The symbols used (as listed at the beginning of the article) have their usual meanings. Suffixes f and w are used to indicate the thermodynamic conditions in the gas and wall conditions respectively, while suffixes o , k , a indicate inlet, throat (critical) and outlet stations respectively.

k ($\approx \gamma$) - isentropic index.

λ - heat conductivity ($\text{kcal/m}\cdot\text{hour}^\circ\text{C}$),

α - local coefficient of heat convection ($\text{kcal/m}^2\cdot\text{hr}^\circ\text{C}$).

The analysis used is based on Refs 2, 7, 8, 9, 10 and 11
Card 4/7 from which Eqs 1 to 6 are given. Taking the origin for

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Convective Heat Transfer in Convergent-Divergent Axi-Symmetrical Nozzles

the linear distance x at the end of the mixing chamber, it is shown that Eq (7) holds for all the experimental sections, C_x being a coefficient depending on the position of x a given section. To express the dependence of this relation on the radius r of the nozzle section, the author introduces now relations of Eqs 9 and 10 (and calls ϕ - the form factor of the nozzle). This leads to Eq (11) as obtained from experimental data shown in Fig 3. In this way the general criterion relation for the local heat transfer from the gas to the wall of a convergent axi-symmetric nozzle with the turbulent boundary layer becomes as given by Eq (12). By putting $\phi = 1$, the case of a uniform cylindrical duct is obtained and the relation is then in a good agreement with the equation for the heat transfer in the case of a uniform flow past a flat plate as given by Eq (13) (see Ref 11). Following recommendations of Ref 9, Eq (14) gives the corresponding relation for the heat transfer in the case of other gases. Correcting it for the intensity and direction of the heat flux, Eq (15) follows,

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from which the local coefficient of the convective heat transfer is given by Eqs (16) and (17). Figs 4 and 5 relate Eq (14) with the experimental results of Ref 6, and show a remarkable agreement. In Fig 6 the experimental data of Ref 5 with De Laval nozzle are correlated with Eq (14). Except for some scatter at a few stations (due mainly to the non-uniform velocity profile at the entrance) the agreement is again quite good. Therefore, it follows that Eq (14) may be also used for divergent nozzles. Figs 7 and 8 show the results of various workers (1 - Ref 1; 2 - Ref 4; 3 - Ref 3; 4 - present work) for the same cases, viz. in Fig 7 for the convergent nozzle and in Fig 8 for the convergent-divergent nozzle. Fig 9 shows the effect of the shape of the nozzle on the coefficient (the inlet and outlet cross-sectional areas as well as the total length of the nozzle remained constant; only the throat area was varied). Finally, Fig 10 shows the relation Nu_{fk} (at the throat) and Re_{fk} for various temperature factors

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T_w/T_o when $P_r = 1$, $T_o = 3000^\circ K$ and $k(\approx \gamma) = 1.3$.

There are 10 figures and 11 references, 7 of which
are Soviet, 4 English.

ASSOCIATION: Kafedra teplovykh dvigateley (Chair of Heat Engines)
Kazanskiy aviatsionnyy institut (Kazan' Institute of
Aeronautical Engineering)

SUBMITTED: May 19, 1958

Card 7/7

USMANOV, A.G.; BAKIROV, N.U.

Viscosity and heat conduction in gases at high pressures. Izv.vys.
ucheb.zav.; neft' i gaz 5 no.12:69-75 '62. (MIRA 17:4)

1. Kazanskiy khimiko-tekhnologicheskiy institut imeni Kirova.

SAKIROV, N.U.; USMANOV, A.G.

Simulation methods in the investigation of the viscosity and
heat conductivity of gases and gas mixtures. Izv. vya. ucheb.
zav.; neft' i gaz 7 no.3:79-80 '64. (MIRA 17:6)

1. Kazanskiy khimiko-tekhnologicheskiy institut imeni Kirova.

USMANOV, A.G.; BAKIROV, N.U.

Application of similarity methods for the study of certain
properties of water vapor. Zhur. fiz. khim. 36 no.3:591-593
Mr '62. (MIRA 17:8)

1. Kazanskiy khimiko-tekhnologicheskii institut imeni Kirova.

1 01079-67

ACC-NR AP6026311

(A)

SOURCE CODE: UR/0113/66/000/005/0016/0019

AUTHOR: Bakirov, R. O. (Candidate of technical sciences)

ORG: None

TITLE: A standard program for primary computer analysis of data from multiple-point strain-gauge measurements on structural units

SOURCE: Avtomobil'naya promyshlennost', no. 5, 1966, 16-19

TOPIC TAGS: computer program, strain gage, data analysis

ABSTRACT: A mathematical algorithm is proposed and the logic circuit is given for a standard digital computer program to be used in primary analysis of the results of multiple-point strain measurements on structural units. The basic characteristics are given for a typical program (TP-1) developed for application on the "Ural-2" digital computer. The proposed program may be used independently in cases where individual strain gauges are fixed at various points on a structural unit. In addition to this, the program is designed for operation in conjunction with a program for secondary analysis. When used for this purpose the results of the program are recorded on a magnetic drum from which they may be retrieved into the operational memory for secondary analysis of observational data. Orig. art. has: 13 formulas, 2 tables.

SUB CODE: 09 / SUBM DATE: none

Cord 1/1 . vlr

UDC: 681.142.2.001.3

L 00916-67 EWP(J) RM

ACC NR: AP6035460

(N)

SOURCE CODE: PO/0099/66/040/004/0621/0629

Moszew, Jan, Bala, Marian and Siedziawska, Eva of the Organic Chemistry Department,
Jagiellonian University (Katedra Chemii Organicznej Uniwersytetu Jagiellońskiego)

Krakow.
"Absorption of Ultraviolet and Visible Light by Tetralin Derivatives of
Diazanthracene and Quinoline"

3/

Warsaw, Roczniki Chemii, Vol 40, No 4, 1966, pp 621-629.

Abstract (Authors' English abstract): The UV and visible absorption
spectra for the derivatives of 1,2-benzo-4-(2'-tetralin)-3,9-diazanthra-
cene, 2-(2'-tetralin)-4-hydroxy-quinoline and 2-(2'-tetraline)-4-anilino-
quinoline have been determined. Some suggestions concerning the structure
of the studied compounds are advanced. Orig. art. has: 3 figures and 2 tables.

[JPRS: 36,862]

TOPIC TAGS: UV absorption, anthracene, nonmetallic organic derivative

SUB CODE: 07 / SUBM DATE: 01 Jul 65 / ORIG REF: 006

Card 1/1 LC

0021 2178

BAKIROV, Raif Usmanovich, kand. tekhn. nauk; REZNIKOV, R.A.,
kand. tekhn. nauk, nauchn. red.; GORYACHEVA, T.V., red.

[Use of modern computers in the calculation of statically
undefinable systems; principal steps in solving problems
using computers and the standard programs for solving
ribbon systems of linear algebraic equations using the
"Ural-2" digital computer] Primenenie sovremennykh vychislitel'nykh mashin pri raschete staticheskii neopredelennykh sistem; osnovnye etapy resheniya zadach na mashine i standartnye programmy resheniya lentochnykh sistem lineinykh algebraicheskikh uravnenii na ETsVM "Ural-2". Moskva, Stroizdat, 1965. 70 p.
(MIRA 18:4)

BAKIROV, S.B., kand. geologo-mineralogicheskikh nauk

Climatic characteristics of the Malyy Karatau during the Middle
Carbonaceous epoch. Vest. AN Kazakh. SSR 21 no.7:47-51 JI '65.
(MIRA 18:8)

BAKIROV, S.B.; KOLESNIKOVA, I.Z.

Upper Paleozoic tuffs in the Lesser Karatau. Izv. AN Kazakh. SSR.
Ser. geol. nauk no.5:63-66 '63. (MIRA 17:1)

1. Kazakhskiy politekhnicheskii institut, Alma-Ata.

BAKIROV, S. B.; KORABLEV, B. W.

Lower Carboniferous sediments in the southwestern spurs of the
Ketmen' Range. Izv. vys. uch. zav.: geol. i razv. 5 no. 7:30-41
Jl '62. (MIRA 15:10)

1. Kazakhskiy politekhnicheskii institut.

(Ketmen' Range—Geology, Stratigraphic)

BAKIROV, T.Kh., tekhnik.

~~SECRET~~
Reducing the number of personnel in heat and power plants (TETS).
Energetik 5 no.4:8-9 Ap '57. (MIRA 10:6)
(Electric power plants)